DOCUMENT RESUME

ED 065 578 TM 001 765

TITLE	Sociologist (profess. & kin.) 0-36.31--Technical Report on Standardization of the General Aptitude Test Battery.
INSTITUTION	Manpower Administration (DOL), Washington, D.C. U.S. Training and Employment Service.
REPORT NO	S-254
PUB DATE	May 63
NOTE	8p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Aptitude Tests; *Cutting Scores; Evaluation Criteria; Job Applicants; *Job Skills; Norms; Occupational Guidance; *Personnel Evaluation; Professional Personnel; Sociology; Test Reliability; Test Validity
IDENTIFIERS	GATB; *General Aptitude Test Battery; Sociologist

ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included. (AG)

ED 065578

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TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

SOCIOLOGIST (profess. & kin.) 0-36.31

B-531 S-254

TM 001 965

U. S. Employment Service
in Cooperation with
Minnesota State Employment Service

May 1963

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

SOCIOLOGIST (profess. & kin.) 0-36.31

B-531

Summary

The GATB, B-1002B, was administered to a final sample of 51 students at the University of Minnesota, Minneapolis, Minnesota. The criterion consisted of the grade-point averages. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data, and their combined selective efficiency, Aptitudes G-Intelligence and V-Verbal Aptitude were selected for inclusion in the final test norms.

GATB Norms for Sociologist (profess. & kin.) 0-36.31, B-531.

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
G	CB-1- H CB-1- I CB-1- J	120	G	Part 3 Part 4 Part 6	115
V	CB-1- J	110	V	Part 4	110

Effectiveness of Norms

The data in Table IV indicate that only 67 percent of the non-test-selected students used for this study were good students; if the students had been test-selected with the above norms, 76 percent would have been good students. 33 percent of the non-test-selected students used for this study were poor students; if the students had been test-selected with the above norms, only 24 percent would have been poor students.

TECHNICAL REPORT

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Sociologist 0-36.31.

II. Sample

The General Aptitude Test Battery, B-1002B, was administered during May 1962 to 50 junior and senior undergraduate students majoring in sociology at the College of Science, Literature and Arts (SLA), University of Minnesota, Minneapolis, Minnesota. A list of all sociology majors who were either juniors or seniors was obtained from the Dean's office and letters were sent to 230 students (86 male and 144 female) on this list. Fifty of these students (19 male and 31 female) volunteered to participate in this study. To determine if the sample of volunteers for this study was representative of the sociology majors at SLA, a random sample of 50 of the nonvolunteers on the Dean's list was selected, and the volunteer and nonvolunteer samples were compared to each other with regard to (1) overall grade-point average, and (2) performance on the American Council on Education Psychological Examination (ACE) and Minnesota Scholastic Aptitude Test (MSAT). The results of these comparisons showed no significant differences between the two samples. Therefore, the sample of volunteer sociology majors can be considered as representative of the entire group at the University of Minnesota.

Of the 50 students who volunteered for this study, two were excluded from the final sample because of inadequate criterion data. Three students in the nonvolunteer group who were tested with the GATB in their freshman year were added to the sample for this study. Therefore, the final sample is comprised of 51 students (21 male and 30 female).

All students in the final sample had gained upper division standing by satisfactorily completing 84 quarter credits of work at SLA or other colleges. For admittance without probation to upper division work in sociology, an overall grade-point average of 2.0 for the first six quarters is required. The University of Minnesota grading system is as follows: a grade of A (4) is excellent; a grade of B (3) is good; a grade of C (2) is fair; a grade of D (1) is poor; and a grade of F (0) is failing.

TABLE I

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education, and Experience

N = 51	M	σ	Range	r
Age (years)	23.3	4.0	20-36	.286*
Education (years)	15.3	0.5	15-16	.209

*Significant at the .05 level

III. Job Description

Job Title: Sociologist (profess. & kin.) 0-36.31

Job Summary: Studies a body of empirical and experimental sociological knowledge for application to, and solution of, problems arising from interaction of human groups. Investigates origin, development and functioning of human groups and social relationships which have arisen out of group life in society. Collects, organizes, and interprets scientific data relating to community organizations, social customs, the family, and other social phenomena for use by administrators, lawmakers, educators and other officials engaged in the solution of social problems.

Course Summary: Studies a body of empirical and experimental sociological knowledge for application to, and solution of, problems arising from interaction of human groups.

Course Descriptions:

Man in Modern Society: Characteristics of human group life.

The American Community: Sociological analysis of modern American society.

Social Statistics: Introduction to statistical methods in analyses of social data.

An Introduction to the Theory and Practices of Social Work: Survey of social service with consideration of areas of social needs, social agencies, their purpose and function, and methodology and philosophy of social work practice.

Elements of Criminology: General survey of the field of criminology.

Case Method Applied to the Study of Human Problems: General application of interviewing methods for students who plan to work professionally in fields involving human relationships.

Tutorial and Honors Work in Selected Fields:

Population Theory: Emphasizes cultural and social phases of population change, with particular reference to birth rates, death rates, and migration.

World Population Problems: Population policy, both historical and present-day, in Europe, Asia, and other selected areas but with special emphasis on the United States.

Deliquent Behavior: Critical analysis of nature of delinquent behavior and its "causes".

Social Problems: Survey course in contemporary social problems with special emphasis on personal demoralization and social disorganization.

Modern Agencies for Control of Juvenile Delinquency: Functions of school, welfare, casework and groupwork agencies.

Social Psychology: Research and theory regarding relation of the individual to social groups.

Minority Group Relations: Interaction of social and cultural groups in America.

Social Organization: Organization and structure of social groups; basic culture patterns of economic, political, and social institutions.

The Family: Evolution and development of the family.

Social Stratification and Mobility: Relationship of social mobility to social stratification and social organization.

Urban Sociology: Introduction to study of cities; urban ecology; urban institutions and urban way of life.

Industrial and Occupational Sociology. Analyzes the occupational group, the factory, and the business enterprise as social institutions.

Rural Social Institutions: Factors in rural environment which condition functioning of rural social institutions.

Analytical Social Theory: Examination of major problems of sociological theory; survey of main types of sociological theory and major theoretical concepts.

Social Life and Cultural Change: Theories of social change, with particular attention to their methodological problems.

Background of Modern Social Thought: Survey of major trends of social thought from Renaissance to 19th century.

Methods of Social Research: Survey of major methods employed in social research.

IV. Experimental Battery

All the tests of the GATB, B-1002B, were administered to the sample group

V. Criterion

The criteria (grades) for this study were obtained from grade transcripts at the University of Minnesota during July 1962. The grade transcripts included all courses completed by the end of the Spring quarter, June 1962 Two types of criteria were analyzed to determine the final criterion to be used in validating the norms for this ttudy. The first criterion consisted of total academic grade-point average which was based upon all the course work taken while the student was registered in the College of Science, Literature and Arts, with the exception of military drill, physical education and band courses which were excluded because of their nonacademic content. The second criterion consisted of the grade-point average for sociology courses only.

The Pearson Product-Moment correlation for the relationship between the two criteria was .785, which is significant at the .01 level. In addition, the grade-point averages, on each criterion, were arranged in rank-order. The rank-orders were each converted to linear scores for purposes of computation of Pearson Product-Moment correlations between each criterion and the aptitudes of the GATB, B-1002B. In view of the above relationship between the two criteria and the fact that both criteria yielded approximately the same correlation pattern with the aptitudes of the GATB, grade-point average based only on sociology courses completed was arbitrarily chosen as the final criterion for this study. The range of semester quarter credits in sociology courses for the sample was 8-55, with a mean of 28.9 and a standard deviation of 11.9.

VI Qualitative and Quantitative Analyses

A. Qualitative Analysis

On the basis of the job analysis data, the following aptitudes were rated "important" for success in this occupation:

Intelligence (G) - required in comprehending sociological concepts and applying these concepts to social problems.

Verbal (V) - required in comprehending content of textbooks and lectures, and in clearly presenting information in written or oral form.

Numerical (N) - required for statistical course work and research projects which involve statistical data.

On the basis of the job analysis data, Aptitudes K-Motor Coordination, F-Finger Dexterity and M-Manual Dexterity were rated "irrelevant" for success in this occupation.

B. Quantitative Analysis:

TABLE II

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N = 51

Aptitudes	M	σ	r
G-Intelligence	120.3	11.9	.405**
V-Verbal Aptitude	123.9	13.3	.296*
N-Numerical Aptitude	117.6	14.2	.135
S-Spatial Aptitude	108.1	12.5	.112
P-Form Perception	117.0	13.9	-.027
Q-Clerical Perception	128.8	18.5	.206
K-Motor Coordination	108.3	14.3	-.240
F-Finger Dexterity	98.1	19.6	-.366**
M-Manual Dexterity	99.2	20.2	-.410**

**Significant at the .01 level
*Significant at the .05 level

C. Selection of Test Norms:

TABLE III

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes								
	G	V	N	S	P	Q	K	F	M
Job Analysis Data									
Important	X	X	X						
Irrelevant							X	X	X
Relatively High Mean	X	X				X			
Relatively Low Sigma	X	X		X	X				
Significant Positive Correlation with Criterion	X	X							
Aptitudes to be Considered for Trial Norms	G	V							

Trial norms consisting of various combinations of Aptitudes G and V with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the results showed that B-1002 norms consisting of G-115 and V-110 had the best selective efficiency.

VII. Validity of Norms

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 33 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal students.

Table IV shows the relationship between test norms consisting of Aptitudes G and V with critical scores of 115 and 110, respectively, and the dichotomized criterion for Sociologist 0-36.31. Students in the high criterion group have been designated as "good students" and those in the low criterion group as "poor students."

TABLE IV

Validity of Test Norms for Sociologist 0-36.31
(G-115, V-110)

N = 51	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Students	8	26	34
Poor Students	9	8	17
Total	17	34	51

Phi Coefficient = .29
χ^2 = 4.406
P/2 < .025

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

VIII. Conclusions

On the basis of the results of this study, Aptitudes G and V with minimum scores of 115 and 110, respectively, have been established as B-1002 norms for Sociologist 0-36.31. The equivalent B-1001 norms consist of G-120 and V-110.

IX. Determination of Occupational Aptitude Pattern

The data for this study did not meet the requirements for incorporating the occupation studied into any of the 35 OAP's included in Section II of the Guide to the Use of the General Aptitude Test Battery, January 1962. The data for this sample will be considered for future groupings of occupations in the development of new occupational aptitude patterns.